IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

ATLAS GLOBAL TECHNOLOGIES LLC	§	
v.	§	CIVIL NO. 6:22-CV-355-ADA
ZYXEL NETWORKS CORPORATION and ZYXEL COMMUNICATIONS CORPORATION	§	
ATLAS GLOBAL TECHNOLOGIES LLC	§	
v.	§	CIVIL NO. 6:22-CV-520-ADA
D-LINK CORPORATION	§	

CLAIM CONSTRUCTION
MEMORANDUM AND ORDER

Before the Court are the parties' claim construction briefs: Defendants Zyxel Networks Corporation, Zyxel Communications Corporation, and D-Link Corporation's Opening and Reply briefs (ECF Nos. 41 and 45, respectively)[1] and Plaintiff Atlas Global Technologies LLC's Responsive Claim Construction Brief and Surreply Claim Construction Brief (ECF Nos. 42 and 48, respectively). Further before the Court is the parties' March 28, 2023 Joint Claim Construction Statement. ECF No. 47. United States District Judge Alan D Albright referred this case to the undersigned on October 7, 2022. ECF No. 32. A few days before the May 1, 2023 *Markman* hearing date, the parties notified the Court of their agreement that a hearing is unnecessary and that the claim construction disputes can be resolved based on the briefing. The Court agrees and therefore enters this Claim Construction Memorandum and Order.

[1] References to ECF numbers are to Civil Action No. 6:22-CV-00355 unless otherwise indicated.

Table of Contents

I. BACKGROUND

In the two above-captioned cases, Plaintiff asserts the patents and claims set forth in the following chart (ECF No. 47 at 1–2):

Patent	Asserted Claims
(1) U.S. Patent No. 9,531,520	Claims 1–6, 8–16, and 18–20
(2) U.S. Patent No. 9,763,259	Claims 1–7 and 18
(3) U.S. Patent No. 9,825,738	Claims 1–16
(4) U.S. Patent No. 9,848,442	Claims 1–14
(5) U.S. Patent No. 9,912,513	Claims 1–19
(6) U.S. Patent No. 9,917,679	Claims 1–10
(7) U.S. Patent No. 10,020,919	Claims 1–9 and 11–19
(8) U.S. Patent No. 10,153,886	Claims 1–16
(9) U.S. Patent No. 10,756,851	Claims 1–5, 7–9, and 14–20

This Court previously construed disputed terms in the patents-in-suit in *Atlas Global Technologies LLC v. Sercomm Corporation*, No. 6:21-CV-00818-ADA, ECF No. 84 (W.D. Tex. Dec. 2, 2022) ("*Sercomm*"), and *Atlas Global Technologies LLC v. ASUSTek Computer Inc.*, No. 6:21-CV-00820-ADA, ECF No. 75 (W.D. Tex. Dec. 2, 2022) ("*ASUS*"). The Court held consolidated claim construction proceedings in *Sercomm* and *ASUS*, and the resulting claim construction ruling is referred to as "*Sercomm/ASUS*." *Id.* The Court also construed disputed terms in the patents-in-suit in *Atlas Global Technologies LLC v. OnePlus Technology (Shenzhen) Co., Ltd.*, No. 6:21-CV-1217-ADA, ECF No. 74 (W.D. Tex. Mar. 22, 2023) ("*OnePlus*").

Also, the Eastern District of Texas construed disputed terms in the patents-in-suit in *Atlas Global Technologies LLC v. TP-Link Technologies Co., Ltd., et al.*, No. 2:21-CV-00430-JRG-RSP, ECF No. 117 (E.D. Tex. Feb. 8, 2023) ("*TP-Link*").

II. DESCRIPTION OF THE ASSERTED PATENTS

Plaintiff submits that "[t]hese two lawsuits involve nine patents covering various aspects of Wi-Fi 6, the current and most advanced version of Wi-Fi based on the IEEE 802.11ax standard." ECF No. 42 at 1. Plaintiff further submits:

> The Asserted Patents enable numerous features of Wi-Fi 6, including: OFDMA and MU-MIMO (*e.g.*, the '520, '679, '886, and '851); enhanced spatial reuse and BSS coloring (*e.g.*, the '442); multi-user triggering frames and/or acknowledgement frames (*e.g.*, the '738, '513, '919, '520); and channel sounding, estimation, and feedback in multi-user communication (*e.g.*, the '259, '919). These features support key new functionality in Wi-Fi 6, such as simultaneous uplink transmission by multiple users, simultaneous multi-user acknowledgements in response to multi-user transmissions, the ability for adjacent Wi-Fi networks to both operate when interference levels are sufficiently low, the ability to timely estimate channel conditions in multi-user environments, and the ability to optimize frequency diversity in multi-user settings.

Id. at 2.

The '520 Patent, titled "Apparatus and Method for Downlink and Uplink Multi-User Transmissions," issued on December 27, 2016, and bears an earliest priority date of March 23, 2015. The '520 Patent relates to methods and devices for facilitating uplink multi-user acknowledgment transmissions. *See* '520 Patent at Abstract.

The '259 Patent, titled "Sounding Method," issued on September 12, 2017, and bears an earliest priority date of September 23, 2014. The '259 Patent relates to a receiving device transmitting to a transmitting device a feedback frame including subchannel information measured on a subchannel that is allocated to the first receiving device among a plurality of subchannels into which a predetermined band is divided. *See* '259 Patent at Abstract.

The '738 Patent, titled "Acknowledgment Method and Multi User Transmission Method," issued on November 21, 2017, and bears an earliest priority date of April 4, 2014. The '738 Patent discloses transmitting acknowledgment information for a plurality of data units. *See* '738 Patent at Abstract.

The '442 Patent, titled "Method for Transmitting and Receiving Frame in Wireless Local Area Network," issued on December 19, 2017, and bears an earliest priority date of November

10, 2014. The '442 Patent relates to enhancing performance of a wireless local area network. *See* '442 Patent at Abstract.

The '513 Patent, titled "System and Method for Synchronization for OFDMA Transmission," issued on March 6, 2018, and bears an earliest priority date of October 8, 2014. The '513 Patent relates to a trigger frame that may allocate resources for uplink orthogonal frequency division multiple access (OFDMA) transmission. *See* '513 Patent at Abstract.

The '919 Patent, titled "Protection Methods for Wireless Transmissions," issued on July 10, 2018, and bears an earliest priority date of October 12, 2015. The '919 Patent relates in general to wireless local area networks and, more specifically, to receiving a Multi-User Request-To-Send (MU-RTS) frame, descrambling first scrambled data in the MU-RTS frame using a first scrambling sequence, generating second scrambled data using a second scrambling sequence, and transmitting a Clear-to-Send (CTS) frame including the second scrambled data in response to receiving the MU-RTS frame. *See* '919 Patent at Abstract.

The '851 Patent, titled "Multiplexing Acknowledgment Messages in Response to Downlink Frames," issued on August 25, 2020, and bears an earliest priority date of May 10, 2015. The '851 Patent relates to aggregating uplink frames from multiple stations in a wireless communications network. *See* '851 Patent at Abstract.

Plaintiff also asserts U.S. Patent No. 9,917,679 and U.S. Patent No. 10,153,886, but the parties present no claim construction disputes as to those patents.

III. LEGAL PRINCIPLES

General Principles

The general rule is that claim terms are generally given their plain-and-ordinary meaning. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc); *Azure Networks, LLC v.*

CSR PLC, 771 F.3d 1336, 1347 (Fed. Cir. 2014), *vacated on other grounds*, 575 U.S. 959 (2015) ("There is a heavy presumption that claim terms carry their accustomed meaning in the relevant community at the relevant time.") (internal quotation omitted). The plain-and-ordinary meaning of a term is the "meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." *Phillips*, 415 F.3d at 1313.

The "only two exceptions to [the] general rule" that claim terms are construed according to their plain-and-ordinary meaning are when the patentee (1) acts as his/her own lexicographer or (2) disavows the full scope of the claim term either in the specification or during prosecution. *Thorner v. Sony Computer Ent. Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012). The Federal Circuit has counseled that "[t]he standards for finding lexicography and disavowal are exacting." *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014). To act as his/her own lexicographer, the patentee must "clearly set forth a definition of the disputed claim term" and "'clearly express an intent' to [define] the term." *Thorner*, 669 F.3d at 1365.

"Like the specification, the prosecution history provides evidence of how the PTO and the inventor understood the patent." *Phillips*, 415 F.3d at 1317. "[D]istinguishing the claimed invention over the prior art, an applicant is indicating what a claim does not cover." *Spectrum Int'l, Inc. v. Sterilite Corp.*, 164 F.3d 1372, 1379 (Fed. Cir. 1998). The doctrine of prosecution disclaimer precludes a patentee from recapturing a specific meaning that was previously disclaimed during prosecution. *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1323 (Fed. Cir. 2003). "[F]or prosecution disclaimer to attach, our precedent requires that the alleged disavowing actions or statements made during prosecution be both clear and unmistakable." *Id.* at 1325–26. Accordingly, when "an applicant's statements are amenable to multiple reasonable

interpretations, they cannot be deemed clear and unmistakable." *3M Innovative Props. Co. v. Tredegar Corp.*, 725 F.3d 1315, 1326 (Fed. Cir. 2013).

"Although the specification may aid the court in interpreting the meaning of disputed claim language . . ., particular embodiments and examples appearing in the specification will not generally be read into the claims." *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988). "[I]t is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited." *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004).

Although extrinsic evidence can be useful, it is "less significant than the intrinsic record in determining 'the legally operative meaning of claim language.'" *Phillips*, 415 F.3d at 1317 (quoting *C.R. Bard, Inc. v. United States Surgical Corp.*, 388 F.3d 858, 862 (Fed. Cir. 2004)). Technical dictionaries may be helpful, but they may also provide definitions that are too broad or not indicative of how the term is used in the patent. *Id.* at 1318. Expert testimony may also be helpful, but an expert's conclusory or unsupported assertions as to the meaning of a term are not. *Id.*

Indefiniteness

"[I]ndefiniteness is a question of law and in effect part of claim construction." *ePlus, Inc. v. Lawson Software, Inc.*, 700 F.3d 509, 517 (Fed. Cir. 2012). Patent claims must particularly point out and distinctly claim the subject matter regarded as the invention. 35 U.S.C. § 112, ¶ 2. A claim, when viewed in light of the intrinsic evidence, must "inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910 (2014). If it does not, the claim fails § 112, ¶ 2 and is therefore invalid

as indefinite. *Id.* at 901. Whether a claim is indefinite is determined from the perspective of one of ordinary skill in the art as of the time the application was filed. *Id.* at 911.

IV. AGREED CONSTRUCTIONS

In their March 28, 2023 Joint Claim Construction Statement, the parties submitted the following agreed-upon constructions:

Term	Agreed Construction
Claim Preamble "A method, implemented by a network device in a wireless network, for coordinating an uplink multi-user response transmission to a downlink multi-user transmission" ('520 Patent, Claim 1)	The preamble is limiting. Plain and ordinary meaning except [for] the phrase "network device" below.
Claim Preamble "A method, implemented by a first station in a wireless network, for transmitting an uplink acknowledgment" ('520 Patent, Claim 8)	The preamble is limiting and has plain and ordinary meaning.
Claim Preamble "A method, implemented by a first station in a wireless network, for transmitting an uplink acknowledgment" ('520 Patent, Claim 18)	The preamble is limiting and has plain and ordinary meaning.
Claim Preamble "A method of operating an access point in a wireless communication network" ('738 Patent, Claim 1)	The preamble is limiting and has plain and ordinary meaning.
Claim Preamble "A method of operating a station in a wireless communication network" ('738 Patent, Claim 9)	The preamble is limiting and has plain and ordinary meaning.
Claim Preamble "A method for transmitting a frame, performed in a first station" ('442 Patent, Claim 1)	The preamble is limiting and has plain and ordinary meaning.

Claim Preamble "A station" / "the first station" ('442 Patent, Claim 8)	The preamble is limiting. "The first station" refers to "a station" in the preamble.
Claim Preamble "A method for transmitting an acknowledgement frame for notifying successful data reception by a station (STA) to an access point (AP) in a wireless local area network" ('679 Patent, Claim 1)	The preamble is limiting and has plain and ordinary meaning.
Claim Preamble "A method for receiving an acknowledgement frame for notifying successful data reception by an access point (AP) from a station (STA) in a wireless local area network" ('679 Patent, Claim 6)	The preamble is limiting and has plain and ordinary meaning.

V. LEGAL ANALYSIS FOR U.S. PATENT NO. 9,531,520

A. Term #1: "[a/the] network device"

Term	**Plaintiff's Proposed Construction**	**Defendants' Proposed Construction**
#1: "[a/the] network device" U.S. Patent No. 9,531,520, Cls. 1, 6 Proposed by Defendants	Plain and ordinary meaning	"[an/the] access point"

ECF No. 47 at 3.

The Parties' Positions

Defendants submit that "the parties disagree on whether the phrase 'network device' as it appears in the '520 patent claims could also refer to a non-AP station," and Defendants argue that "the patentee, as the lexicographer, distinguishes 'network device' and 'station' within claim 1, thereby disclaiming any station from the phrase 'network device,' and, during prosecution, the patentee explicitly stated that intention to the patent examiner." Opening at 8.

Plaintiff responds that "Defendants ask the Court to construe a non-technical term that needs no construction." Response at 4. Plaintiff also argues that Defendants' proposal would improperly limit the claims to a preferred embodiment, and Plaintiff submits that the Court, in prior cases, rejected the same arguments that Defendants present here. *Id.* at 5–6. Further, Plaintiff argues that there is no disclaimer or estoppel in the specification or the prosecution history that would limit the disputed term to being an access point. *Id.* at 6–7.

Defendant replies that "[i]n view of the '520 Patent inventors' statements made in, for example, the priority applications and in the Amendment, Defendants respectfully request the Court to consider the additional arguments that the inventors acted as the lexicographer and to adopt Defendants' proposed construction." Reply at 1. Defendant urges that "[b]y reciting 'stations' as a separate and distinct phrase from 'network device' in claims 1 and 6, the '520 Patent inventors elect to distinguish 'station' from 'network device.'" *Id.* at 2; *see id.* at 2–3.

Plaintiff replies that "[t]he '520 specification disproves Defendants' primary argument that the inventors acted as their own lexicographers and equated the claimed 'network device' with an 'access point,' as both this Court and the EDTX have already held." Surreply at 1 (citations omitted). Plaintiff urges that "'[n]etwork device'—as demonstrated by the specification—is a broader term that includes both 'access points' and 'stations.'" *Id.* at 1–2. Further, Plaintiff argues that the prosecution history cited by Defendants contains no lexicography or disclaimer. *Id.* at 2–3.

The Court's Analysis

Claim 1 of the '520 Patent recites (emphasis added):

> 1. A method, implemented by a *network device* in a wireless network, for coordinating an uplink multi-user response transmission to a downlink multi-user transmission, the method comprising:

> generating, by the *network device*, a downlink multi-user frame addressed to a plurality of stations operating in the wireless network, the downlink multi-user frame including a plurality of resource units (RUs), wherein generating the downlink multi-user frame comprises:
>
> assigning each RU of the plurality of RUs to a respective station in the plurality of stations, and
>
> including a respective set of MAC Protocol Data Units (MPDUs) in each RU of the plurality of RUs,
>
> wherein an MPDU in one or more of the RUs in the plurality of RUs includes acknowledgement information indicating properties of a multi-user acknowledgement transmission that the station in the plurality of stations to which the RU is assigned is requested to transmit to acknowledge the downlink multi-user frame;
>
> transmitting the downlink multi-user frame to the plurality of stations over a wireless channel; and
>
> receiving the uplink multi-user response transmission, the uplink multi-user response transmission including multi-user acknowledgement transmissions respectively and simultaneously transmitted by two or more stations in the plurality of stations,
>
> wherein the plurality of RUs respectively correspond to a plurality of simultaneous uplink transmissions, and each of the plurality of simultaneous uplink transmissions uses a sub-channel, spatial stream, or sub-channel and spatial stream combination that is not used by any other of the plurality of simultaneous uplink transmissions.

Defendants emphasize that Claim 1 recites both "a network device" and "a plurality of stations," and Defendants cite authority that "different claim terms are presumed to have different meanings." *Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1382 (Fed. Cir. 2008). Defendants also cite incorporated-by-reference priority provisional applications stating that "for easy description, only the non-AP STA may be called the STA." Opening, Ex. 10A, Provisional Application No. 62/137,138 at ATLAS-00004113; *id.*, Ex. 10B, Provisional Application No. 62/140,349 at ATLAS-00004144; '520 Patent at 1:8–15. This does *not* compel finding that the term "network device" *excludes* stations, however, because a better reading is that the term "network device" is a *broader* term that *includes* "stations." The

specification confirms this by disclosing that a "device" in a communication network can be an access point ("AP") device or can be a "non-AP" device:

> Wireless local area network (WLAN) devices are deployed in diverse environments. These environments are generally characterized by the existence of access points and non-access point stations.
>
> * * *
>
> In the example network 200, at least one wireless communication device (e.g., device 211) is an access point (AP). An AP may be referred to as an AP STA, an AP device, or a central station. The other wireless communication devices (e.g., devices 212–215) may be non-AP STAs. Alternatively, all of the wireless communication devices 211–215 may be non-AP STAs in an Ad-hoc networking environment.
>
> . . . A non-AP STA (e.g., a client device operable by a user) may be, for example, a device with wireless communication capability, a terminal, a wireless transmit/receive unit (WTRU), a user equipment (UE), a mobile station (MS), a mobile terminal, a mobile subscriber unit, a laptop, a non-mobile computing device (e.g., a desktop computer with wireless communication capability) or the like. In one or more aspects, *a non-AP STA may act as an AP* (e.g., a wireless hotspot).
>
> In one aspect, an AP is a functional entity for providing access to a distribution system, by way of a wireless medium, for an associated STA. For example, an AP may provide access to the Internet for one or more STAs that are wirelessly and communicatively connected to the AP. In FIG. 2, wireless communications between non-AP STAs 212–215 are made by way of the AP 211. However, when a direct link is established between two or more non-AP STAs 212–215, the connected STAs 212–215 can communicate directly with each other (without using the AP 211).
>
> In one or more implementations, OFDMA-based 802.11 technologies are utilized, and for the sake of brevity, a STA refers to a non-AP high efficiency (HE) STA, and an AP refers to an HE AP. In one or more aspects, *a STA may act as an AP*.

'520 Patent at 1:26–29 & 6:24–61 (emphasis added); *see id.* at Fig. 2 (illustrating devices).

Defendants submit that all disclosed embodiments in the specification specify an access point to coordinate an uplink multi-user response transmission. *See, e.g.*, '520 Patent at 4:9–12, 4:16–18, 4:22–24, 4:28–30 & Figs. 5A, 6A, 7A & 8A. Reading Claims 1 and 6 in light of the

specification, these claims use "network device" to have a broader meaning than "access point," particularly when considering that independent Claim 18 expressly recites an "access point" in a wireless network. As found in *Sercomm/ASUS*, "because a STA and access point may have overlapping functionality, e.g., a STA may act as an access point, it is improper to arbitrarily limit network device to an access point." *Sercomm/ASUS* at 20–22. The *TP-Link* court reached the same conclusion. *TP-Link* at 18–19 ("[T]he specification discloses that a device in a communication network can be an access point ('AP') or can be a 'non-AP' device."). Limiting "network device" to being an access point would improperly import particular disclosed embodiments into the claims. *See Phillips*, 415 F.3d at 1323.

Defendants also argue that the recited "network device" must be an access point for the claimed invention to be operable. This argument perhaps might pertain to disputes regarding enablement, written description, or infringement but does not warrant a narrow construction of the generic term "network device." Indeed, *Sercomm/ASUS* noted that "network device" is "generic, in the same way a 'communications device' might describe a telephone." *Sercomm/ASUS* at 22.

Finally, Defendant cites prosecution history in which the patentee stated:

> As discussed with the Examiner at the July 20, 2016 interview, the claims are directed to Up-Link (UL) Multi-User (MU) transmissions, and in particular to UL MU acknowledgement transmissions transmitted in response to a Down-Link (DL) frame. The UL MU transmission may be simultaneously transmitted from respective stations to an Access Point (AP).

Opening, Ex. 1A, July 22, 2016 Amendment at 7 (ATLAS-00004057). This passage emphasizes the claimed use of Up-Link (UL) Multi-User (MU) transmissions, does not use the term "network device," and, even when read generously, the purportedly synonymously use of "network device" (in the cited claims) and "Access Point (AP)" (in the patentee's argument) is

not "so clear as to show reasonable clarity and deliberateness, and so unmistakable as to be unambiguous evidence of disclaimer." *Genuine Enabling Tech. LLC v. Nintendo Co.*, 29 F.4th 1365, 1374 (Fed. Cir. 2022) (citation and internal quotations omitted).

The Court therefore hereby expressly rejects Defendants' proposed construction, and no further construction is necessary. *See U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997) ("Claim construction is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement. It is not an obligatory exercise in redundancy."); *see also O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008) ("[D]istrict courts are not (and should not be) required to construe every limitation present in a patent's asserted claims."); *Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1207 (Fed. Cir. 2010) ("Unlike *O2 Micro*, where the court failed to resolve the parties' quarrel, the district court rejected Defendants' construction."); *Bayer Healthcare LLC v. Baxalta Inc.*, 989 F.3d 964, 977–79 (Fed. Cir. 2021).

The Court therefore hereby construes **"network device"** to have its **plain meaning**.

B. Term #2: "acknowledgement information"

Term	**Plaintiff's Proposed Construction**	**Defendants' Proposed Construction**
#2: "acknowledgement information" U.S. Patent No. 9,531,520, Cls. 1, 2, 4, 8, 9, 11, 12, 18, & 19 Proposed by Defendants	Plain and ordinary meaning	"solicitation for information to be transmitted following receipt of the downlink multi-user frame to acknowledge the downlink multi-user frame"

ECF No. 47 at 3–4.

The Parties' Positions

Defendants argue that the patentee expressly defined this term in the specification. Opening at 10–11.

Plaintiff responds that the portion of the specification relied upon by Defendants expressly relates to "one embodiment" and does not set forth a lexicography. Response at 8.

Defendants reply that "Plaintiff attempts to expand the phrase beyond the proper scope defined by the '520 Patent inventors." Reply at 4.

Plaintiff replies that the disclosure cited by Defendants discloses what "one embodiment . . . may include" and, in any event, does not support Defendants' proposals of "solicitation for information," "following receipt," and "multi-user frame." Surreply at 3.

The Court's Analysis

Defendant argues that the patentee defined "acknowledgment information" in the following disclosure:

> In one embodiment, one or more MPDUs may include acknowledgement information that is used for indicating to respective STAs a scheme/technique used to transmit acknowledgement messages to the AP. For example, in one embodiment, generation of one or more MPDUs addressed to each STA may include setting an acknowledgement policy subfield (ACK policy subfield) in a header of the one or more MPDUs (i.e., a MAC header) such that STA1 and STA2 can identify which technique/scheme is to be used by each non-legacy STA for acknowledging successful receipt of the MPDUs by each respective STA.

'520 Patent at 14:15–25 (emphases added).

This disclosure does not purport to define "acknowledgement information" and thus does not meet the "exacting" standard for lexicography, which "requir[es] the patentee to 'clearly express an intent' to redefine a term." *Baxalta Inc. v. Genentech, Inc.*, 972 F.3d 1341, 1349 (Fed. Cir. 2020). Moreover, this disclosure does not use the phrases "solicitation for

information," "following receipt," and "multi-user frame" that appear in Defendants' proposed construction.

Defendants cite additional disclosure in the specification as follows:

> FIG. 1A depicts a multi-user (MU) transmission that solicits an immediate acknowledgement . . . according to one embodiment. FIG. 1B depicts a MU transmission that solicits delayed acknowledgements from all target stations according to one embodiment.

'520 Patent at 3:55–60 (emphasis added). Here, too, Defendants do not show that the specification defines the term "acknowledgment information," and specific features of particular disclosed embodiments should not be imported into the claims. *See Phillips*, 415 F.3d at 1303.

Finally, Defendants argue that Plaintiff fails to show where else the specification purportedly defines "acknowledgement information," but Defendants have not established that the patentee was obligated to define this term. Rather, the patentee evidently relied on the plain meaning of this term, and "[t]he patentee is free to choose a broad term and expect to obtain the full scope of its plain and ordinary meaning unless the patentee explicitly redefines the term or disavows its full scope." *Thorner*, 669 F.3d at 1367.

The Court therefore hereby expressly rejects Defendants' proposed construction, and no further construction is necessary. *See U.S. Surgical*, 103 F.3d at 1568; *see also O2 Micro*, 521 F.3d at 1362; *Finjan*, 626 F.3d at 1207; *Bayer*, 989 F.3d at 977–79.

The Court therefore hereby construes **"acknowledgement information"** to have its **plain meaning**.

VI. LEGAL ANALYSIS FOR U.S. PATENT NO. 9,763,259

C. Term #3: "transmitting to the transmitting device a feedback frame including subchannel information measured on a first subchannel after receiving the NDP frame" and "receiving from each receiving device a feedback frame including subchannel information measured on a subchannel that is allocated to each receiving device among a plurality of subchannels into which a band is divided, after transmitting the NDP frame"

Term	Plaintiff's Proposed Construction	Defendants' Proposed Construction
#3(a): "transmitting to the transmitting device a feedback frame including subchannel information measured on a first subchannel after receiving the NDP frame" U.S. Patent No. 9,763,259, Cl. 1 Proposed by Defendants	Plain and ordinary meaning	"in response to receiving the NDP frame, transmitting to the transmitting device a feedback frame including subchannel information measured on a first subchannel one SIFS after receiving the NDP frame" Otherwise, this term is indefinite.
#3(b) "receiving from each receiving device a feedback frame including subchannel information measured on a subchannel that is allocated to each receiving device among a plurality of subchannels into which a band is divided, after transmitting the NDP frame" U.S. Patent No. 9,763,259, Cl. 18 Proposed by Defendants	Plain and ordinary meaning	"in response to and one SIFS after the transmitting of the NDP frame, receiving from each receiving device a feedback frame including subchannel information measured on a subchannel that is allocated to each receiving device among a plurality of subchannels into which a band is divided" Otherwise, this term is indefinite.

ECF No. 47 at 4.

The Parties' Positions

Defendants argue: "Defendants' proposed constructions are consistent with the '259 patent specification and should be adopted. Otherwise, without a particular construction in light of particular embodiments disclosed in the specification, these claim phrases are indefinite under 35 U.S.C. § 112, ¶ 2." Opening at 13; *see id.* at 12–13.

Plaintiff responds that "Defendants seek to inject indefiniteness and confusion where there is none," and "[t]here is no uncertainty in how the different limitations of Claims 1 and 18 'relate[] to' one another." Response at 9. Plaintiff also argues that "Defendants' argument about any ambiguity created by the term 'after' is undermined by the fact that Defendants take no issue with the term 'after' when used in a substantially similar way in other parts of the claim." *Id.* (citations omitted). Further, Plaintiff argues that "Defendants' proposed construction seeks to improperly limit the claims to one preferred embodiment while excluding others." *Id.* at 10. Finally, Plaintiff argues that "Defendants' construction in several respects simply reorders the claim language," thereby introducing potential confusion that should be rejected. *Id.* at 11.

Defendants reply that "Plaintiff's own exclusion of FIG. 7 from the disputed phrases simply highlights how a POSITA would not have known with reasonable certainty, *inter alia*, whether the disputed claim phrases are related to the immediately preceding step of 'receiving/transmitting a null data packet (NDP) frame,' or whether the feedback frame could be transmitted/received based on different NDP frames or some other triggers." Reply at 5. Defendants also submit that "[w]ithout a clarifying construction, the claim language (e.g., 'after receiving the NDP frame') is unclear and unbounded to *any feedback frame* and *any time after* the NDP frame." *Id.* at 6.

Plaintiff replies that whereas "Defendants repeat the same indefiniteness arguments this Court rejected, claiming the relationship between the null data packet (NDP) frame and the feedback frame is unclear," the claims "spell out that the feedback frame is transmitted or received 'after' the NDP frame." Surreply at 4 (citations omitted). Plaintiff also argues that Defendants' proposal "would impermissibly exclude the Fig. 20 embodiment by requiring the feedback frame be transmitted 'in response to and one SIFS' after the NDP frame." *Id.* at 6.

The Court's Analysis

Claim 1 of the '259 Patent recites (emphasis added):

> 1. A sounding method by a first receiving device, the method comprising:
> receiving a null data packet announcement (NDPA) frame from a transmitting device;
> receiving a null data packet (NDP) frame from the transmitting device after receiving the NPDA frame; and
> *transmitting to the transmitting device a feedback frame including subchannel information measured on a first subchannel after receiving the NDP frame*, the first subchannel being a subchannel that is allocated to the first receiving device among a plurality of subchannels into which a predetermined band is divided,
> wherein transmitting the feedback frame includes:
> transmitting the feedback frame to the transmitting device while a second feedback frame including subchannel information measured on the second subchannel is transmitted to the transmitting device by a second receiving device, the second subchannel being a subchannel that is allocated to the second receiving device among the plurality of subchannels.

"Defendants request that the Court construe the disputed claim phrases because a POSITA would not have known the scope of the invention with certainty, rendering the disputed claim phrases indefinite under 35 U.S.C. § 112, ¶ 2 . . .," and "[f]or example, a POSITA would not have known with reasonable certainty whether the disputed claim phrases are related to the immediately preceding step of 'receiving/transmitting a null data packet (NDP) frame,' or whether the feedback frame could be transmitted/received based on different NDP frames or some other triggers."

Defendants thus argue, in essence, that the Court should construe these claims to resolve an ambiguity and, without such construction, the claims are indefinite. Defendants present no authority for this proposition that indefiniteness can be cured through claim construction. Rather, the real issue is whether these claims are, indeed, ambiguous and therefore indefinite.

As to Defendants' alternative proposed constructions, Defendants propose that the recited feedback frame must be "in response to" the NDP frame and must be sent "one SIFS" after the NDP frame.

In *OnePlus,* the Court rejected Defendants' proposed interpretation and found that "because the claim language is not limited in the manner Defendant argues, the Court concludes that Defendant's proposed construction improperly imports limitations from the specification." *OnePlus* at 18; *see id.* at 13–19.

The Court reaches the same conclusion in the present case. "NDP" refers to "null data packet," and "SIFS" refers to a "Short IFS," wherein "IFS" refers to an "interframe space." '259 Patent at 1:62–2:1, 4:7–8, 7:7, 7:30 & 9:15–18; *see, e.g., id.* at Figs. 4–5, 7 & 18–24. Claim 1 recites "transmitting . . . a feedback frame . . . after receiving the NDP frame," and Claim 18 recites "receiving . . . a feedback frame . . . after transmitting the NDP frame."

As to "after," this temporal requirement is clear on its face and imposes no requirement as to any particular amount of time or the presence or absence of any particular intervening event.

The parties cite disclosures in the specification, such as regarding Figures 7, 19, and 20:

> Referring to FIG. 7, a beamformer device transmits a null data packet announcement (NDPA) frame to beamformee devices, and then transmits a null data packet (NDP) frame to the beamformee devices *after a SIFS interval*. The first beamformee device (e.g., beamformee device 1) among the plurality of beamformee devices receiving the NDP frame feeds a feedback frame back to the beamformer device as a response of the NDP frame after a SIFS interval.
>
> * * *
>
> [Referring to FIG. 19, b]eamformee device 1 among the beamformee devices receiving the channel feedback trigger frame transmits a CB frame to the beamformer device as a response of the channel feedback trigger frame after a SIFS interval.

* * *

> Referring to FIG. 20, in another embodiment, a plurality of beamformee devices transmits CB frames in parallel after receiving a channel feedback trigger frame.

'259 Patent at 9:15–18, 18:35–38 & 18:55–58 (emphasis added). This specific feature of transmitting a feedback frame "after a SIFS interval" is a specific feature of particular disclosed embodiments that should not be imported into the claims. *See Phillips*, 415 F.3d at 1323. The passages cited by Defendant (Reply at 6) do not compel otherwise. *See* '259 Patent at 9:15–17, 9:22–44, 16:59–62, 16:66–17:5, 17:6–8, 17:32–34, 18:7–10, 18:35–38 & 18:55–57. Indeed, Figure 20 of the '259 Patent appears to show that there may be multiple SIFS between an NDP and a feedback frame. *Id.* at Fig. 20. Defendant argues that Figure 20 is outside the scope of these claims because "Subchannel Info" (*see id.* at 18:11–17) and a "Channel Feedback Trigger" (*see id.* at 18:18–26) precede the "CB" frame (which can be a feedback frame, *see id.* at 9:22–24), but nothing in Claim 1 or Claim 18 precludes the presence of intervening events such as a "Channel Feedback Trigger."

Thus, here as in *OnePlus* (*see OnePlus* at 19), the Court construes these disputed terms to have their **plain meaning**.

D. Term #4: "wherein the NDPA frame indicates information corresponding to the predetermined length"

Term	**Plaintiff's Proposed Construction**	**Defendants' Proposed Construction**
#4: "wherein the NDPA frame indicates information corresponding to the predetermined length" U.S. Patent No. 9,763,259, Cl. 6 Proposed by Defendants	Plain and ordinary meaning	Indefinite

ECF No. 47 at 4.

The Parties' Positions

Defendants argue that this term is indefinite because "a POSITA would not have understood what is, and what is not, encompassed within the scope of the phrase 'indicates information corresponding to.'" Opening at 13. Defendants further argue that "the patent specification does not disclose how a frame 'indicate[s] information,' what that information may be, or how any such information 'corresponds to the predetermined length.'" *Id.*

Plaintiff responds that this term uses commonly understood words that require no construction. Response at 11. Plaintiff also argues that "[t]he '259 specification explains there are numerous ways to 'indicate' the predetermined length of the CB feedback frame," and "the specification provides that the NDPA frame need not explicitly state the precise length of the subsequent CB feedback frame, but rather may 'include information on the maximum CB length.'" *Id.* at 12 (citations omitted). Further, Plaintiff submits that the Court rejected a nearly identical indefiniteness argument in a prior case. *Id.* at 13.

Defendants reply that "as presented in Defendants' Opening Brief, a POSITA would not have understood what is, and what is not, encompassed within the scope of the phrase 'indicates information corresponding to.'" Reply at 8 (citation omitted). Alternatively, Defendants submit that "to the extent the Court believes that this term is not indefinite, Defendants respectfully submit that this term should be given its *actual* plain-and-ordinary meaning, in which the NDPA frame includes information on the maximum feedback frame length." *Id.* at 8–9.

Plaintiff replies that "the specification is clear that an NDPA frame including information on the maximum CB length is just 'one embodiment' and an 'example.'" Surreply at 7 (citation omitted).

The Court's Analysis

Claim 6 of the '259 Patent depends from Claim 5, which in turn depends from Claim 1.

Claims 1, 5, and 6 recite (emphasis added):

> 1. A sounding method by a first receiving device, the method comprising:
> receiving a null data packet announcement (NDPA) frame from a transmitting device;
> receiving a null data packet (NDP) frame from the transmitting device after receiving the NPDA frame; and
> transmitting to the transmitting device a feedback frame including subchannel information measured on a first subchannel after receiving the NDP frame, the first subchannel being a subchannel that is allocated to the first receiving device among a plurality of subchannels into which a predetermined band is divided,
> wherein transmitting the feedback frame includes:
> transmitting the feedback frame to the transmitting device while a second feedback frame including subchannel information measured on the second subchannel is transmitted to the transmitting device by a second receiving device, the second subchannel being a subchannel that is allocated to the second receiving device among the plurality of subchannels.
>
> * * *
>
> 5. The method of claim 1, wherein transmitting the feedback frame includes
> adding pad bits to a data field of the feedback frame when a length of data to be transmitted by the feedback frame is shorter than a *predetermined length*, or partitioning the data into a plurality of fragments and inserting any one of the fragments to the data field of the feedback frame when the length of the data is longer than the *predetermined length*.
>
> 6. The method of claim 5, *wherein the NDPA frame indicates information corresponding to the predetermined length*.

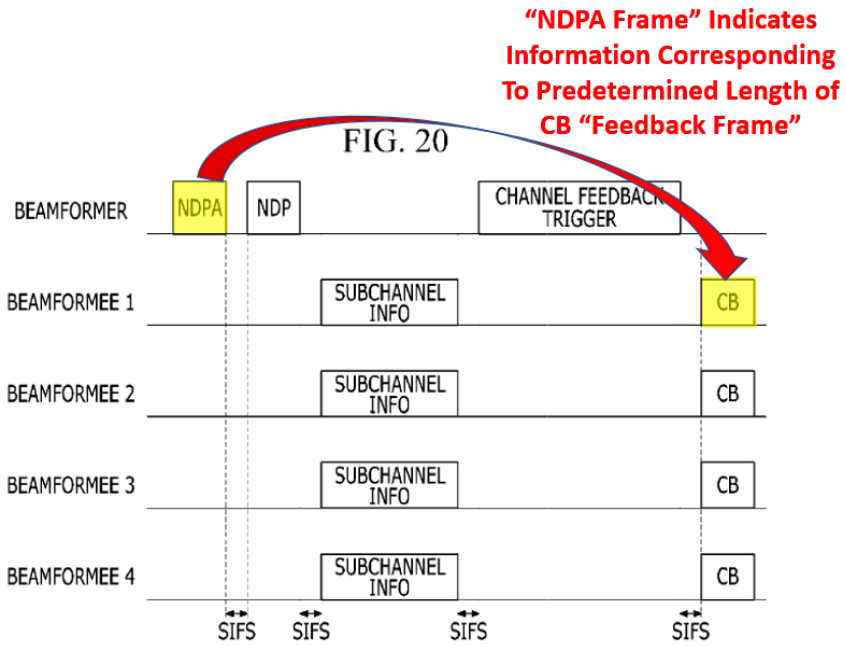
The specification discloses:

> In some embodiments, the beamformer device may indicate the maximum CB [(compressed beamforming)] length to the beamformee devices. The maximum CB length may be a maximum length of the data field in the CB frame or a maximum length of the CB frame.
>
> In one embodiment, the beamformer device may indicate the maximum CB length using the NDPA frame. For example, a data field of the NDPA frame, i.e., a

> frame body field of a MAC frame inserted to the NDPA frame may include information on the maximum CB length.
>
> In another embodiment, the beamformer device may indicate the maximum CB length using the NDP frame. For example, a HE signal field (HE-SIG-A or HE-SIG-B) of the NDP frame may include the maximum CB length as the signaling information.
>
> As such, when the beamformer device indicates the maximum CB length using the NDPA frame or the NDP frame, the beamformer device and the beamformee devices may change the maximum CB length each time performing a sounding procedure.
>
> On the other hand, the MAC efficiency may be deteriorated because the beamformee device may perform unnecessary padding or fragmentation due to the maximum CB length. Accordingly, in yet another embodiment, the beamformer device may select the maximum CB length based on other information. For example, the beamformer device may determine the maximum CB length based on a previous CB frame length or the number of antennas.

'259 Patent at 15:38–65; *see id.* at 2:35–37 ("The NDPA frame or the NDP frame may indicate information corresponding to the predetermined length."); *see also id.* at Fig. 20.

Plaintiff's annotation of Figure 20 (Response at 12) is helpful in this regard and is reproduced here:



The NDPA frame thus indicates certain information but need not be in any particular format. Defendants' arguments and expert opinions regarding indefiniteness perhaps may relate to potential assertions of lack of written description or lack of enablement but do not demonstrate any lack of reasonable clarity of the claim language. Indeed, *Sercomm/ASUS* also rejected substantially the same indefiniteness argument presented here by Defendants, noting that "a claim term is not indefinite simply because it is broad." *Sercomm/ASUS* at 25 (citing *BASF Corp. v. Johnson Matthey Inc.*, 875 F.3d 1360, 1367 (Fed. Cir. 2017)); *see Sercomm/ASUS* at 24–26. Defendants do not show that "indicate" has anything other than its ordinary meaning in common parlance, and Plaintiff notes that the Federal Circuit has found that "correspond to" has a known plain meaning. *See Respironics, Inc. v. Invacare Corp.*, 303 F. App'x 865, 880–81 (Fed. Cir. 2008) (finding that "corresponding to" is broader than "equal to"); *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 806 (Fed. Cir. 1999) (affirming application of the "ordinary meaning" of "correspond to").

The Court therefore hereby expressly rejects Defendants' indefiniteness argument. As to Defendants' alternative suggestion that "this term should be given its *actual* plain-and-ordinary meaning, in which the NDPA frame includes information on the maximum feedback frame length" (Reply at 8–9), the specification discloses this as merely an "example" ('259 Patent at 15:43–47), and this specific feature of a particular disclosed embodiment should not be imported into the claim. *See Phillips*, 415 F.3d at 1323.

Finally, to whatever extent Defendants are arguing that Plaintiff proposes an incorrect construction for "feedback frames" (*see* Reply at 8), Plaintiff does not seek a construction of "feedback frames" as meaning CB frames, and the specification permissively discloses "the feedback frame may be a compressed beamforming (CB) frame." '259 Patent at 9:22–24.

The Court therefore hereby expressly rejects Defendants' alternative proposed construction, and no further construction is necessary. *See U.S. Surgical*, 103 F.3d at 1568; *see also O2 Micro*, 521 F.3d at 1362; *Finjan*, 626 F.3d at 1207; *Bayer*, 989 F.3d at 977–79.

The Court accordingly hereby construes **"wherein the NDPA frame indicates information corresponding to the predetermined length"** to have its **plain meaning**.

VII. LEGAL ANALYSIS FOR U.S. PATENT NO. 9,825,738

E. Term #5: "transmitting the downlink data and the uplink setup information in a single physical downlink frame to a plurality of stations" and "the physical downlink frame comprising: uplink setup information including a first information to be used for uplink multi-user transmission by the station, and downlink data"

Term	Plaintiff's Proposed Construction	Defendants' Proposed Construction
#5(a): "transmitting the downlink data and the uplink setup information in a single physical downlink frame to a plurality of stations" U.S. Patent No. 9,825,738, Cl. 1 Proposed by Defendants	Plain and ordinary meaning	"transmitting the downlink data and the uplink setup information in a single physical downlink frame to a plurality of stations, wherein the uplink setup information is that which would otherwise be in an uplink setup or uplink initiation (ULI) frame, and the downlink data is data other than the uplink setup information"
#5(b): "the physical downlink frame comprising: uplink setup information including a first information to be used for uplink multi-user transmission by the station, and downlink data" U.S. Patent No. 9,825,738, Cl. 9 Proposed by Defendants	Plain and ordinary meaning	"the physical downlink frame comprising: uplink setup information including a first information to be used for uplink multi-user transmission by the station, and downlink data, wherein the uplink setup information is that which would otherwise be in an uplink setup or uplink initiation (ULI) frame, and the downlink data is data other than the uplink setup"

ECF No. 4–5.

The Parties' Positions

Defendants argue that "[f]rom the plain claim language, a POSITA would have understood that 'downlink data' is different and distinct from 'uplink setup information,' and claims 1 and 9 require both 'downlink data' and 'uplink setup information.'" Opening at 14. Defendant also argues that "a POSITA considering the '738 specification would have understood the 'setup information' as the ULI frame (or UL setup frame) and the 'downlink data' as the NDPA frame (or DL PPDU), both of which are piggybacked together to form the 'single physical downlink frame.'" *Id.* at 15.

Plaintiff responds that "[t]he concept of a physical downlink data frame (e.g., a PPDU), was well known by a POSITA at the time of the '738 invention," and "Defendants' construction adds requirements not specified in the claims, based on a specification passage describing a particular embodiment shown in Figure 25." Response at 14 (citations omitted). Plaintiff also argues: "Defendants construction implicates an uplink setup or uplink initiation (ULI) frame although no such frame is recited in the claims, while also requiring that uplink setup information must be located separately from these uplink frames. Nothing in the '738 claims require that uplink setup information must be located separately from an uplink setup frame or from a ULI frame." *Id.* at 15.

Defendants reply that "[i]f the Court declines to adopt a plain-and-ordinary-meaning construction, Defendants respectfully submit that the Court should give 'uplink setup information' its meaning as admitted by Plaintiff: 'information that (i) provides information for initiating uplink multi-user transmissions sent simultaneously by a plurality of stations; (ii) provides information to be used for the uplink multi-user transmissions sent simultaneously

by the plurality of stations; (iii) includes a common portion; and (iv) includes a dedicated portion.'" Reply at 10 (citation omitted).

Plaintiff replies that "[t]his Court previously rejected a similar proposed alternative construction from the *Sercomm* defendant, and construed 'uplink setup information' according to its plain-and-ordinary meaning, based at least in part on the detailed context provided in the '738 claims regarding the requirements of 'uplink setup information.'" Surreply at 8 (citations omitted).

The Court's Analysis

The specification discloses:

> Referring to FIG. 25, information included in a ULI frame is piggybacked on an NDPA frame, information included in a UL req frame is piggybacked on a CB frame, and information included in a UL setup frame is piggybacked on a DL PPDU. Then, the AP and the stations STA1 and STA2 may omit a procedure for exchanging the ULI frame, the UL req frame, and the UL setup frame.

'738 Patent at 23:61–67. Frames communicated between devices may include, for example, data frames, control frames, or management frames. '738 Patent at 9:31–32.

Claim 1 of the '738 Patent, for example, recites (emphasis added):

> 1. A method of operating an access point in a wireless communication network, the method comprising:
>
> generating downlink data;
>
> generating uplink setup information, the uplink setup information including a first information to be used for uplink multi-user transmission;
>
> *transmitting the downlink data and the uplink setup information in a single physical downlink frame to a plurality of stations*;
>
> simultaneously receiving multiple uplink frames from multiple stations of the plurality of stations; and
>
> transmitting an acknowledgement frame to the multiple stations after a successful reception of the multiple uplink frames,
>
> wherein the uplink setup information includes a common information portion and a dedicated information portion, the common information portion includes a second information being common to all of the plurality of stations to receive the uplink setup information, and the dedicated information portion

> includes respective third information specific to each of the plurality of stations to receive the uplink setup information, and
>
> wherein the second information is a function of a total number of space time streams to be used to transmit the multiple uplink frames.

The claim thus requires both "downlink data" and "uplink setup information," and "different claim terms are presumed to have different meanings." *Helmsderfer*, 527 F.3d at 1382. Defendants do not, however, demonstrate that "downlink data" must be separate from "uplink setup information." Because such separation might be implied by Defendants' proposal that "downlink data is data other than the uplink setup information," Defendants' proposal in that regard should be rejected. In other words, Defendants have not persuasively shown that there can be no overlap between "downlink data" and "uplink setup information." Also, the Court in *OnePlus* found that Defendants' proposals of "would otherwise be" are confusing. *OnePlus* at 25.

Defendants, in their reply brief, alternatively propose construing "uplink setup information" to mean: "information that (i) provides information for initiating uplink multi-user transmissions sent simultaneously by a plurality of stations; (ii) provides information to be used for the uplink multi-user transmissions sent simultaneously by the plurality of stations; (iii) includes a common portion; and (iv) includes a dedicated portion." Reply at 10. Defendants do not persuasively support limiting the general term "uplink setup information" to these specific requirements. *See Phillips*, 415 F.3d at 1323; *see also Thorner*, 669 F.3d at 1365, 1367.

The Court in *Sercomm/ASUS*, as well as the *TP-Link* court, rejected a proposal to construe "uplink setup information" to mean "information on the transmission characteristics to be used for a subsequent uplink transmission" and instead construed the term to have its plain meaning. *Sercomm/ASUS* at 31–34; *TP-Link* at 29–32.

The Court, informed by *OnePlus* as well as by *Sercomm/ASUS* and *TP-Link*, reaches the same conclusion here that the Court reached in *OnePlus*, and the Court therefore hereby construes these disputed terms to have their **plain meaning**.

F. Term #6: "the second information is a function of a total number of space time streams to be used to transmit the multiple uplink frames" and "the second information is a function of a total number of space time streams to be used to perform the simultaneous transmission of the uplink frame and the one or more uplink frames from the one or more other stations"

Term	**Plaintiff's Proposed Construction**	**Defendants' Proposed Construction**
#6(a): "the second information is a function of a total number of space time streams to be used to transmit the multiple uplink frames" U.S. Patent No. 9,825,738, Cl. 1 Proposed by Defendants	Plain and ordinary meaning Alternatively, "the second information in the common information portion is a value that is related to the total number of space time streams to be used to transmit the multiple uplink frames"	Indefinite
#6(b): "the second information is a function of a total number of space time streams to be used to perform the simultaneous transmission of the uplink frame and the one or more uplink frames from the one or more other stations" U.S. Patent No. 9,825,738, Cl. 9 Proposed by Defendants	Plain and ordinary meaning Alternatively, "the second information in the common information portion is a value that depends on the total number of space time streams to be used to simultaneously transmit the multiple uplink frames"	Indefinite

ECF No. 47 at 5–6.

The Parties' Positions

Defendants argue that "these phrases are indefinite because a POSITA would not have been reasonably informed of the claims' scope with respect to the claimed 'second information,' as the intrinsic record provides no guidance." Opening at 16 (citation omitted).

Plaintiff responds that "[a] POSITA understands that 'a function' indicates that one quantity is determined based on one or more other quantities," and "[t]he '738 claims provide reasonable certainty regarding their scope, as this Court found in ASUS/Sercomm, based on essentially the same evidence presented here." Response at 15–16 (citations omitted).

Defendants reply that "Plaintiff and Plaintiff's expert merely replace 'function of' with the equally unknown and unbounded 'may be determined in accordance with,'" and "Plaintiff still fails to cite any intrinsic or extrinsic evidence to identify any particular formula that employs a 'function' of the total number of space time streams." Reply at 11.

Plaintiff replies that "function" is a broad term that is well understood in the art, and "[c]ontrary to Defendants' argument, the '738 claims and specification describe that 'second information' is a dependent variable and 'total number of space time streams' is an independent variable." Surreply at 8–9.

The Court's Analysis

The Court in *Sercomm/ASUS*, as well as the *TP-Link* court, rejected indefiniteness challenges and construed these terms to have their plain meaning, finding that "[b]readth is not indefiniteness." *Sercomm/ASUS* at 26–31 (quoting *BASF Corp. v. Johnson Matthey Inc.*, 875 F.3d 1360, 1367 (Fed. Cir. 2017)); *TP-Link* at 25–29 (same). Also, Defendants urge in the present case that "the patent specification fails to provide any clarity as neither the phrase 'a function of a total number of space time streams' nor the phrase 'a total number of space time streams' appears in the patent specification," but this claim language is reasonably clear when read in the context of the specification. *See* '738 Patent at 22:39–44 ("In some embodiments, the common information is information to be commonly used for the UL MU-MIMO transmission by the station STA1 and STA2, and includes the total number of data streams, i.e., space-time

streams to be transmitted by the stations STA1 and STA2 and a transmission length of the UL data frame."). For the same reasons set forth in those decisions, the Court rejects Defendants' indefiniteness arguments, and no further construction is necessary.

The Court accordingly hereby construes **"the second information is a function of a total number of space time streams to be used to transmit the multiple uplink frames"** and **"the second information is a function of a total number of space time streams to be used to perform the simultaneous transmission of the uplink frame and the one or more uplink frames from the one or more other stations"** to have their **plain meaning**.

VIII. LEGAL ANALYSIS FOR U.S. PATENT NO. 9,848,442

G. Term #7: "a mode that is High Efficiency" and "a mode of a standard previous to a standard defining the High Efficiency mode"

Term	Plaintiff's Proposed Construction	Defendants' Proposed Construction
#7(a): "a mode that is High Efficiency" U.S. Patent No. 9,848,442, Cls. 1, 8 Proposed by Defendants	"a mode specified as High Efficiency (HE) by an 802.11 Standard or proposed 802.11 Standard"	Indefinite
#7(b): "a mode of a standard previous to a standard defining the High Efficiency mode" U.S. Patent No. 9,848,442, Cls. 1, 8 Proposed by Defendants	"a legacy mode specified in a IEEE 802.11 Standard released prior to 802.11ax standard or proposed standard (e.g., a non-HT frame, a HT frame, a VHT frame)"	Indefinite

ECF No. 47 at 6.

The Parties' Positions

Defendants argue that "the '442 patent does not provide any objective criteria by which to determine whether the efficiency of a PPDU's 'mode' (whatever that may be) is sufficiently 'high' so as to fall within the scope of the claimed 'mode of High Efficiency,'" and "nothing in

the patent's disclosure, including the claims, limits the claimed invention only to the 802.11 standard." Opening at 17–18 (citations omitted). Defendant also argues that the Court should reject Plaintiff's attempt to encompass future standards. *Id.* at 18. Finally, Defendants argue that, even if Plaintiff's proposed construction is adopted, Plaintiff's proposed parenthetical should be rejected because the examples would not be helpful to the jury. *Id.* at 19 n.4.

Plaintiff responds: "The '442 Patent discloses a system for receiving and processing two different types of 802.11 frames—High Efficiency (HE) frames, and legacy frames. A High Efficiency frame is a frame specified as High Efficiency by an 802.11 standard or proposed standard. A legacy frame is a frame defined by versions of the 802.11 standard prior to the 802.11ax standard. Both definitions come directly from the specification." Response at 18. Plaintiff argues that "[t]he specification provides definitions of both terms." *Id.* Further, Plaintiff submits that "[t]he IEEE was working on the 802.11ax standard at the time of the invention, and Newracom (the original assignee) was involved in the standards process." *Id.* at 20–21.

Defendants reply that "the disputed claim phrases make no reference to *any* 802.11 standard, and the Court should reject Plaintiff's improper attempt to incorporate such limitations into the plain language of the claim." Reply at 12. Defendants also reiterate that Plaintiff's proposed non-limiting examples would not be helpful to the jury. *Id.* Further, Defendants argue that "Plaintiff also fails to identify any objective boundary in the '442 Patent (or elsewhere) by which a POSITA would know whether the efficiency of a given (or future) WLAN's mode is high 'enough' to meet the 'high efficiency' limitations of the asserted claims." *Id.* at 13.

Plaintiff replies that "Defendants seek to distort the '442 claims beyond any reasonable interpretation by arguing they are not limited to Wi-Fi systems." Surreply at 9 (citation omitted).

"Here," Plaintiff argues, "the '442 claims themselves expressly require 'a mode that is High Efficiency' and are clearly limited to Wi-Fi." *Id.* at 10. Plaintiff also argues that "the specification makes clear the word 'legacy' (which Defendants do not mention in either brief) is also tied to the 802.11 standard." *Id.* Finally, Plaintiff argues that these are not terms of degree because the specification defines HE frames and legacy frames in conjunction with the 802.11 standard. *Id.* at 11 (citation omitted).

The Court's Analysis

The Court in *Sercomm/ASUS* and *OnePlus* rejected indefiniteness challenges and construed these terms with reference to IEEE 802.11 standards. *Sercomm/ASUS* at 39–45; *OnePlus* at 31–32; *see* '442 Patent at 1:52–55, 8:21–28 ("a legacy PPDU (i.e., a PPDU specified by versions earlier than the IEEE 802.11ax)"), 12:4–16, 12:19–20 & 12:45–48. For example, Defendants do not persuasively demonstrate that the word "mode" gives rise to any confusion in this context, and "High Efficiency" is not a term of degree but rather is a proper noun that refers to a known term in IEEE 802.11 standards. *See, e.g., Lextron Sys. v. Microsoft Corp.*, No. C-04-0588 VRW, 2005 WL 6220089, at *8 (N.D. Cal. Jun. 1, 2005) ("'Internet' is capitalized in the claim language, suggesting the proper noun; whatever 'internet' might mean, there is only one 'Internet.'").

Defendants do not justify departing from the Court's prior constructions of these terms except that Defendants urge that a claim limitation that refers to standards must be limited to standards in existence at the time of the invention. *See Phillips*, 415 F.3d at 1313; *see also PC Connector Solutions LLC v. SmartDisk Corp.*, 406 F.3d 1359, 1363 (Fed. Cir. 2005); *see, e.g., Uniloc USA, Inc. v. Apple, Inc.*, No. 19-cv-01692-EJD (VKD), 2021 WL 432183, at *8–*9 (N.D. Cal. Jan. 15, 2021). Although this is already implicit in the Court's constructions, out of

an abundance of caution the construction of "a mode that is high efficiency" can be readily clarified to refer to standards or proposed standards "at the time of the invention."

The Court therefore hereby construes **"a mode that is high efficiency"** to mean **"a mode specified as High Efficiency (HE) by an 802.11 standard (or proposed standard) at the time of the invention,"** and the Court construes **"a mode of a standard previous to a standard defining the high efficiency mode"** to mean **"a legacy mode specified in an 802.11 standard (or proposed standard) prior to the 802.11ax standard."**

H. Term #8: "when the BSS of the first PPDU is the BSS to which the first station does not belong, a received signal strength of the first PPDU is higher than a first threshold, and the first PPDU is a frame having a mode that is High Efficiency and having a PHY header that includes duration information for setting a virtual carrier sensing . . .; when . . . the received signal strength of the first PPDU is higher than the first threshold, the first PPDU is a frame having a mode of a standard previous to a standard defining the High Efficiency mode, and the first PPDU is a frame having a PHY header that does not include duration information for setting the virtual carrier sensing . . .; and when . . . the received signal strength of the first PPDU is lower than the first threshold"

Term	**Plaintiff's Proposed Construction**	**Defendants' Proposed Construction**
#8: "when the BSS of the first PPDU is the BSS to which the first station does not belong, a received signal strength of the first PPDU is higher than a first threshold, and the first PPDU is a frame having a mode that is High Efficiency and having a PHY header that includes duration information for setting a virtual carrier sensing . . .; when . . . the received signal strength of the first PPDU is higher than the first threshold, the first PPDU is a frame having a mode of a standard previous to a standard defining the High Efficiency mode, and the first PPDU is a frame having a PHY header that does not include duration information for setting the virtual carrier sensing . . .; and when . . . the received signal strength of the first PPDU is lower than the first threshold" U.S. Patent No. 9,848,442, Cls. 1, 8 Proposed by Defendants	Plain and ordinary meaning	Indefinite If not indefinite, the Court must determine whether only one of the claimed steps with mutually exclusive conditions, or all three of the claimed steps with mutually exclusive conditions, are required to occur for purposes of meeting the claim limitations.

ECF No. 47 at 6.

The Parties' Positions

Defendants argue: "[T]he subject claim phrase is indefinite because a POSITA would be unable to determine if the claim has or has not yet been infringed. For example, with respect to method claim 1, is the claim infringed: (1) at the time when none of the conditions have occurred, and none of the corresponding actions are performed; (2) at the time when one condition has occurred and only one corresponding action has been performed, or (3) at the time when all three conditions have occurred and all three corresponding actions have been performed?" Opening at 21 (citation omitted). Alternatively, Defendants argue that "if the Court finds that these phrases are definite, it must issue a determination as to whether *all three* corresponding actions . . . must actually be performed in order to practice the subject claim phrases, or if performing *only one of the three* corresponding actions (or none, if the conditions do not occur) is sufficient to practice the subject claim phrases."

Plaintiff responds that "[t]he '442 Patent teaches that stations will treat received frames differently depending on certain characteristics of the frame." Response at 21. Plaintiff also argues that whereas "Defendants argue it is unclear whether practicing one, two, or all three method steps is necessary to infringe claim 1," "Federal Circuit caselaw is clear—an accused device must be capable of practicing all three steps to infringe, and the prior art must disclose all three steps to invalidate." *Id.* at 23. Alternatively, Plaintiff argues that "[e]ven if the Court finds method claim 1 indefinite, Defendants have not presented any argument or evidence that system claim 8 is indefinite." *Id.* at 24.

Defendants reply that "[n]o case cited by Plaintiff is binding as to whether multiple conditional-claim limitations in method claims, as a matter of claim construction, must be practiced or not." Reply at 14 (citations omitted). Defendants argue that "[t]he indefiniteness

issue of this claim stems from the fact that it is unclear whether a system performing the process is required to perform the method claim limitations when it is in an environment where one, two, or three of the conditions are not present." *Id.* at 15. Defendants urge that "Plaintiff's position that the prior-art methods must actually practice all of the steps, but that infringement may still occur when one (or none!) of the contingent steps is actually performed, is contrary to law and should be rejected." *Id.* at 16 (citation omitted).

Plaintiff replies that "[a]s Atlas explained in its Response brief, the '442 Patent contemplates three scenarios: (1) setting a PHY-level virtual carrier sensing; (2) setting a MAC-level virtual carrier sensing; or (3) attempting to obtain a transmission opportunity. Because these three scenarios are mutually exclusive, only one can occur at a time. . . . To infringe method claim 1 of the '442 Patent, a device must actually perform one of the three contemplated scenarios *and* be capable of performing the other two." Surreply at 12 (citations omitted).

The Court's Analysis

The Court in *Sercomm/ASUS* and *OnePlus* rejected an indefiniteness challenge and construed this term to have its plain meaning. *Sercomm/ASUS* at 45–49 (discussing *Lincoln Nat'l Life Ins. v. Transamerica Life Ins.*, 609 F.3d 1364, 1367–70 (Fed. Cir. 2010)); *OnePlus* at 32–33. As the Court found in *Sercomm/ASUS*, an infringing instrumentality must be *able* to perform all steps but need only *actually perform* one step. *See Sercomm/ASUS* at 48–49. Also, whereas Claim 1 is a method claim, Claim 8 is an apparatus claim, and, "in order to infringe[,] a system must be capable of addressing each alternative, regardless of which alternative occurs at any particular point." *Interdigital Tech. Corp. v. Lenovo Holding Co., Inc.*, No. CV 19-1590-LPS, 2021 WL 1856937, at *5–*6 (D. Del. May 10, 2021). Finally, there is no uncertainty as to what is required for invalidity purposes because the Federal Circuit has explained that, for a

claim with conditional limitations, "the prior art must teach each step of the claim, including the response to each condition . . . ." *Hytera Commc'ns Co. v. Motorola Sols., Inc.*, No. 2019-2124, 841 F. App'x 210, at *215–*216 (Fed. Cir. Jan. 19, 2021).

The Court therefore hereby construes this term to have its **plain meaning**.

IX. LEGAL ANALYSIS FOR U.S. PATENT NO. 9,912,513

I. Term #9: "wherein at least a portion of the payload of the uplink frame is associated with the first guard interval length," "wherein at least a portion of the payload of the uplink frame is associated with the first CP length," "wherein at least a portion of the legacy header is associated with a second CP length," and "wherein at least a portion of the respective non-legacy header is associated with the first guard interval"

Term	Plaintiff's Proposed Construction	Defendants' Proposed Construction
#9(a): "wherein at least a portion of the payload of the uplink frame is associated with the first guard interval length" U.S. Patent No. 9,912,513, Cl. 1 Proposed by Defendants	Plain and ordinary meaning	Indefinite
#9(b): "wherein at least a portion of the payload of the uplink frame is associated with the first CP length" U.S. Patent No. 9,912,513, Cl. 9 Proposed by Defendants	Plain and ordinary meaning	Indefinite
#9(c): "wherein at least a portion of the legacy header is associated with a second CP length" U.S. Patent No. 9,912,513, Cl. 10 Proposed by Defendants	Plain and ordinary meaning	Indefinite

#9(d): "wherein at least a portion of the respective non-legacy header is associated with the first guard interval" U.S. Patent No. 9,912,513, Cl. 16 Proposed by Defendants	Plain and ordinary meaning	Indefinite

ECF No. 47 at 7.

The Parties' Positions

Defendants argue that "portion" and "associated with" are terms of degree, and Defendants argue that these claims are indefinite because "a POSITA would not have been reasonably informed of the bounds of the claims with respect to the 'portion' of the claimed header and claimed payload and the level to which they must be 'associated with' the guard interval or CP length." Opening at 23. Further, Defendants argue: "Plaintiff's alternative construction should also be rejected because the phrasing 'some or all' fails to remedy the indefinite issues. Notably, a 'portion' of something, by its plain language, cannot include 'all' of it, and the word 'some' is no less indefinite than the claim term 'portion.'" *Id.* at 25.

Plaintiff responds that "[t]hese claim phrases use simple words—'at least a portion' and 'associated with'—according to their well-understood meaning." Response at 25. Plaintiff argues that "the '513 independent claims require that 'at least a portion of the payload of the uplink frame' (i.e., some or all of uplink frame's payload) will 'use[]' and therefore be 'associated with the first guard interval length'—like the plain and ordinary meaning." *Id.* at 26. Plaintiff also argues that "the '513 specification also shows that some or all of the uplink frame's payload 842/862 uses the guard interval length 'GI3' indicated by the downlink frame." *Id.* at 27. Further, Plaintiff argues that "even if 'portion' and 'associated with' are terms of degree, the '513 Patent provides a standard for measuring their bounds," and "the specification provides

(1) the claimed 'portion' includes the uplink payload symbols that are preceded by the guard interval GI3 and (2) the claimed 'association' comes from the fact that those symbols use the same guard interval GI3 indicated by the prior downlink frame." *Id.* at 29–30.

Defendants reply that "FIG. 8 (which Plaintiff annotates) reinforces that the specification provides no insight into how at least a *portion* of the payload of the uplink frame is *associated with* a guard interval: the Figure and accompanying explanation do not convey to a POSITA *how* there is an association between the guard interval and the payload of the uplink frame, let alone *what* the relevant 'portion' of the uplink frame might be." Reply at 16.

Plaintiff replies that "the Court can resolve the Parties' dispute by simply ruling the terms are not indefinite," and "the specification explains (1) the claimed 'portion' includes the uplink payload symbols that are preceded by the guard interval GI3 (highlighted yellow in the figure to the right) and (2) the claimed 'association' comes from the fact that those symbols use the same guard interval GI3 indicated by the prior downlink frame." Surreply at 14 (citation omitted).

The Court's Analysis

The Court in *Sercomm/ASUS* and *OnePlus* rejected an indefiniteness challenge and construed this term to have its plain meaning. *Sercomm/ASUS* at 50–55; *OnePlus* at 34–35. The *TP-Link* court reached essentially the same conclusion but adopted Plaintiff's alternative proposed constructions, interpreting "portion" to mean "some or all" and interpreting "associated with" to mean "uses." *TP-Link* at 35–40.

In short, particularly when read in light of the specification, this claim language is reasonably clear, wherein "at least a portion" on its face refers to some or all, and "associated" is a broad but well-understood, non-technical term in common usage. *See Sercomm/ASUS* at 54; *see also* '513 Patent at 3:62–67, 13:14–34, 17:10–39 & Fig. 8. Also, as found in *TP-Link*, the

Advanced Aerospace case cited by Defendants involved an "outboard portion" of an airplane wing and, to whatever extent applicable, is factually distinguishable. *See Advanced Aerospace Techs., Inc. v. U.S.*, 124 Fed. Cl. 282, 293–94 (2015). The *Advanced Aerospace* court found indefiniteness because "the intrinsic evidence contains no guidance that would inform a skilled artisan, with reasonable certainty, as to where the 'outboard portion' begins and ends." *Id.* at 293. In the present case, the phrase "at least a portion" raises no such concerns as to line-drawing between different portions and instead merely refers to "some or all."

The Court therefore hereby construes these disputed terms to have their **plain meaning**.

X. LEGAL ANALYSIS FOR U.S. PATENT NO. 10,020,919

J. Term #10: "determining exactly a number of the one or more station information fields in the NDPA . . . in response to determining that the number of the one or more station information fields in the NDPA is one, transmitting first Channel State Information (CSI) feedback in response to receiving the NDP," "when the number of the one or more station information fields in the NDPA is greater than one . . . transmitting the first CSI feedback in response to receiving the first trigger frame," "when the number of one or more station information fields in the NDPA is greater than one . . . transmitting second CSI feedback in response to receiving the second trigger frame," "when a number of the one or more station information fields in the NDPA is one, receiving first Channel State Information (CSI) feedback transmitted in response to the NDP having only one station information field," "when the number of the one or more station information fields in the NDPA is greater than one . . . receiving the first CSI feedback in response to transmitting the first trigger frame," and "when the number of one or more station information fields in the NDPA is greater than one . . . receiving second CSI feedback in response to transmitting the second trigger frame"

Term	**Plaintiff's Proposed Construction**	**Defendants' Proposed Construction**
#10(a): "determining exactly a number of the one or more station information fields in the NDPA . . . in response to determining that the number of the one or more station information fields in the NDPA is one, transmitting first Channel State Information (CSI) feedback in response to receiving the NDP" U.S. Patent No. 10,020,919, Cl. 1 Proposed by Defendants	Plain and ordinary meaning	Indefinite. If not indefinite, the claim[] should be construed as set forth below[:] "determining an exact value of a number of one or more station information fields in the NDPA; . . .[] in response to (i) determining that the value of the number is one, which indicates that there is only one station information field in the NDPA and (ii) receiving the NDP, transmitting first Channel State Information (CSI) feedback to an access point"

#10(b): "when the number of the one or more station information fields in the NDPA is greater than one . . . transmitting the first CSI feedback in response to receiving the first trigger frame" U.S. Patent No. 10,020,919, Cl. 2 Proposed by Defendants	Plain and ordinary meaning	Indefinite. If not indefinite, the claim[] should be construed as set forth below[:] "when the value of the number is two or more, which indicates that there are two or more station information fields in the NDPA, . . . transmitting the first CSI feedback to the access point in response to receiving the first trigger frame"
#10(c): "when the number of one or more station information fields in the NDPA is greater than one . . . transmitting second CSI feedback in response to receiving the second trigger frame" U.S. Patent No. 10,020,919, Cl. 8 Proposed by Defendants	Plain and ordinary meaning	Indefinite. If not indefinite, the claim[] should be construed as set forth below[:] "when the value of the number is two or more, which indicates that there are two or more station information fields in the NDPA, . . . transmitting second CSI feedback to the access point in response to receiving the second trigger frame"
#10(d): "when a number of the one or more station information fields in the NDPA is one, receiving first Channel State Information (CSI) feedback transmitted in response to the NDP having only one station information field" U.S. Patent No. 10,020,919, Cl. 11 Proposed by Defendants	Plain and ordinary meaning	Indefinite. If not indefinite, the claim[] should be construed as set forth below[:] "when a station determines that the value of a number of the one or more station information fields is one, which indicates that there is only one station information field in the NDPA, receiving first Channel State Information (CSI) feedback transmitted in response to the NDP having only one station information field"

#10(e): "when the number of the one or more station information fields in the NDPA is greater than one . . . receiving the first CSI feedback in response to transmitting the first trigger frame" U.S. Patent No. 10,020,919, Cl. 12 Proposed by Defendants	Plain and ordinary meaning	Indefinite. If not indefinite, the claim[] should be construed as set forth below[:] "when the station determines that the value of the number is two or more, which indicates that there are two or more station information fields in the NDPA, . . . receiving the first CSI feedback in response to transmitting the first trigger frame"
#10(f): "when the number of one or more station information fields in the NDPA is greater than one . . . receiving second CSI feedback in response to transmitting the second trigger frame" U.S. Patent No. 10,020,919, Cl. 19 Proposed by Defendants	Plain and ordinary meaning	Indefinite. If not indefinite, the claim[] should be construed as set forth below[:] "when the station determines that the value of the number is two or more, which indicates that there are two or more station information fields in the NDPA, . . . receiving second CSI feedback in response to transmitting the second trigger frame"

ECF No. 47 at 7–9.

The Parties' Positions

Defendants argue: "When the independent claims 1 and 11 are practiced (*i.e.*, when the 'number . . . is one'), it would be *impossible* to practice dependent claims 2, 8, 12, and 19 (requiring 'the number . . . is greater than one'). Conversely, if dependent claims 2, 8, 12, and 19 were practiced, independent claims 1 and 11 would not be practiced. This mutually exclusive relationship between the independent and dependent claims renders the dependent claims 2, 8, 12, and 19 indefinite." Opening at 27. Alternatively, Defendants argue that "if the disputed claim phrases are found not to be indefinite, Defendants' proposed alternative constructions are consistent with the '919 patent specification and should be adopted." *Id.* at 29.

Plaintiff responds that this Court has determined in prior cases that these terms require no construction. Response at 31; *see id.* at 34–35. Plaintiff argues that "[i]f the STA 'determin[es] that the number of station information fields in the NDPA is one,' the STA transmits a feedback frame after receiving a Null Data Packet," "Claim 1 does not limit the action taken when there is more than one station information field," and "Claims 2 and 12 recite what happens when the number of station information fields is greater than one." *Id.* at 32 (citations omitted); *see id.* at 34. Finally, Plaintiff argues that Defendants' proposal of "value" "introduces ambiguity because it is not clear if the 'value' is the cardinality or the index of a station information field." *Id.* at 36.

Defendants reply that "[a]s presented in Defendants' Opening Brief, dependent claims 2, 8, 12, and 19, particularly when they are read in conjunction with claims 1 and 11, are nonsensical and therefore indefinite." Reply at 19 (citation omitted).

Plaintiff replies by reiterating that in the independent claims, if there is one station information field in the NDPA, the STA transmits or the AP receives feedback after an NDP," "if there is more than one station information field in the NDPA, the STA may take any action or inaction," and "[t]he dependent claims add that, when there is more than one station information field, infringement requires that feedback is sent or received in response to a trigger frame." Surreply at 16 (citations omitted).

The Court's Analysis

This Court in *Sercomm/ASUS* and *OnePlus*, as well as the *TP-Link* court, rejected an indefiniteness challenge and construed these terms to have their plain meaning. *Sercomm/ASUS* at 61–67; *OnePlus* at 40–42; *TP-Link* at 49–54.

Claims 1 and 2 of the '919 Patent, for example, recite (emphasis added):

1. A method performed by a wireless device, the method comprising:

receiving a Null Data Packet Announcement (NDPA), the NDPA including one or more station information fields;

determining exactly a number of the one or more station information fields in the NDPA;

receiving a Null Data Packet (NDP); and

in response to determining that the number of the one or more station information fields in the NDPA is one, transmitting first Channel State Information (CSI) feedback in response to receiving the NDP,

wherein the number of the one or more station information fields in the NDPA is the cardinality of the one or more station information fields in the NDPA.

2. The method of claim 1, further comprising:

when the number of the one or more station information fields in the NDPA is greater than one:

receiving a first trigger frame; and

transmitting the first CSI feedback in response to receiving the first trigger frame.

The specification discloses different "sounding" procedures, and "[w]hich of the first sounding procedure and the second sounding procedure is used is indicated by a number of per-station information fields in the NDPA frame." '919 Patent at 18:52–55; *see id.* at 18:19–49 ("In a first procedure[], a single user provides CSI feedback using a UL Single-User (SU) MIMO transmission. In a second procedure[], a plurality of users provide CSI feedback simultaneously using an UL MU transmission that uses OFDMA, MU-MIMO, or both."); *see also id.* at 18:50–19:32.

Sercomm/ASUS found that because the conditions set forth in Claim 1 and Claim 2 cannot both be satisfied at the same time, there is no impossibility. *Sercomm/ASUS* at 66. *Sercomm/ASUS* noted that the accused device need only be capable of performing the method and therefore need not perform the conditional method steps in every instance. *Id.*

Thus, these claims are not internally inconsistent but rather recite methods carried out by wireless devices that are capable of operating in a particular way when the number of the one or

more station information fields in the NDPA is one. The "determining" evaluates whether the condition is met. In the independent claim, if the condition is not met then "transmitting first Channel State Information (CSI) feedback in response to receiving the NDP" is not required. The dependent claim incorporates the limitations of the independent claim and thus presents something akin to an either-or determination. *See Ex Parte Schulhauser*, No. 2013-007847, 2016 WL 6277792, at *3–*5 (P.T.A.B. Apr. 28, 2016) (citing, e.g., *Cybersettle, Inc. v. Nat'l Arbitration Forum, Inc.*, 243 F. App'x 603, 606–07 (Fed. Cir. 2007) ("It is of course true that method steps may be contingent. If the condition for performing a contingent step is not satisfied, the performance recited by the step need not be carried out in order for the claimed method to be performed.")). The same analysis applies to the other claims here at issue, namely Claims 8, 11, 12, and 19 of the '919 Patent. Defendants' cited authority, that a conditional claim is "not . . . sufficient under law" if the "condition never occur[s]," is therefore unpersuasive. *Sun Chemical Corp. v. U.S.*, 698 F.2d 1203, 1208 n.8 (Fed. Cir. 1983).

Additional authorities cited by Defendants, for example that "[i]t is axiomatic that a dependent claim cannot be broader than the claim from which it depends," are likewise inapplicable and unpersuasive. *Alcon Research, Ltd. v. Apotex Inc.*, 687 F.3d 1362, 1367 (Fed. Cir. 2012) (citations omitted); *see Intamin Ltd. v. Magnetar Techs., Corp.*, 483 F.3d 1328, 1335 (Fed. Cir. 2007) ("An independent claim impliedly embraces more subject matter than its narrower dependent claim."); *see also Synchronoss Techs., Inc. v. Dropbox, Inc.*, 987 F.3d 1358, 1366 (Fed. Cir. 2021) (claims indefinite because "nonsensical and require an impossibility").

Further, despite Defendants' arguments (*see* Reply at 19), it is immaterial that "transmitting the first CSI feedback" in dependent Claim 2 has its antecedent basis in the recital of "transmitting first Channel State Information (CSI) feedback" in Claim 1. This antecedent

basis relationship does not imply that both "transmitting" steps must be performed and does not otherwise give rise to any inconsistency in these claims.

Finally, Defendants argue that "it is unclear to a POSITA whether the CSI feedback is transmitted in response to a station's analysis of station information fields *only*, or in response to *both* that analysis and receipt of an NDP." Opening at 28. The disputed terms themselves plainly recite what each limitation must be "in response to." Defendants do not persuasively demonstrate any lack of reasonable certainty in this regard.

The Court therefore hereby expressly rejects Defendants' indefiniteness arguments.

As to Defendants' alternative proposed constructions, Defendants' proposal of referring to a "*value* of the number [of the one or more station information fields]" would tend to confuse rather than clarify the scope of the claims by introducing potential confusion as to whether "value" refers to the content of the station information fields or instead simply refers to their numerosity. A fair reading of the claim language refers to the latter, so there is no reason to add complication to the claims by introducing the word "value." Finally, Defendants do not persuasively justify limiting these claims to an "access point." The Court therefore expressly rejects Defendants' alternative proposed constructions.

In sum, the Court here reaches the same conclusion reached in *Sercomm/ASUS*, *TP-Link*, and *OnePlus* (cited above) that these terms are not indefinite, and the Court hereby construes these terms to have their **plain meaning**.

K. Term #11: "wherein the number of the one or more station information fields in the NDPA is the cardinality of the one or more station information fields in the NDPA"

Term	Plaintiff's Proposed Construction	Defendants' Proposed Construction
#11: "wherein the number of the one or more station information fields in the NDPA is the cardinality of the one or more station information fields in the NDPA" U.S. Patent No. 10,020,919, Cls. 1, 11 Proposed by Defendants	Plain and ordinary meaning Alternatively, "wherein the number of the one or more station information fields in the NDPA is the number of elements in the set of station information fields"	Plain meaning: wherein the number of the one or more station information fields in the NDPA is the number of the one or more station information fields in the NDPA This plain meaning renders the claims indefinite.

ECF No. 47 at 9.

The Parties' Positions

Defendants argue: "Independent claims 1 and 11 require 'determining *exactly a number*' and 'determining that the number of the one or more station information fields in the NDPA is one.' In other words, claims 1 and 11 explicitly recite that the number of the 'one or more station information fields' is 'one,' resulting in this claim limitation being nonsensical (essentially meaning 'one is one'). To the extent Plaintiff attempts to ascribe any meaning other than 'one is one' to the subject claim phrase in view of the other claim 1 and claim 11 language, the claims are indefinite." Opening at 29.

Plaintiff responds that "Defendants' construction eliminates 'cardinality' from the claims and does not provide any alternative language that serves the same clarifying function," and "Defendants' construction also introduces ambiguity because it is not clear if the 'number' is the cardinality or the index of a station information field." Response at 37.

Defendants reply by reiterating that "a POSITA would find the claim language ambiguous at least because: (i) the scope of 'cardinality' is unclear from the claim language

itself; and (ii) this disputed phrase is circular (e.g., it devolves to 'the number of the one or more station information fields is the number of the one or more station information fields')." Reply at 20.

Plaintiff replies that "Defendants' arguments ignore the patentee's explanation of this term during prosecution," and "[m]oreover, it is axiomatic that, at least in mathematical terms, a 'set' can include only one entry." Surreply at 17 (citation omitted).

The Court's Analysis

As found by the *TP-Link* court, "the patentee added this claim limitation during prosecution, evidently to clarify that 'number' here refers to *how many* station information fields there are in the NDPA (rather than, perhaps, to refer to a numerical *value* set forth in a station information field)." *TP-Link* at 57 (citations omitted).

Also, this Court in *OnePlus* rejected an argument that there can be only one station information field in the NDPA in claims 1 and 11, and the Court construed this term to have its plain meaning. *OnePlus* at 43–45; *see Sercomm-ASUS* at 67–68.

The Court therefore hereby construes this term to have its **plain meaning**.

XI. LEGAL ANALYSIS FOR U.S. PATENT NO. 10,756,851

L. Term #12: "scheduling extension"

Term	Plaintiff's Proposed Construction	Defendants' Proposed Construction
#12: "scheduling extension" U.S. Patent No. 10,756,851, Cls. 1, 2, 7, 8 Proposed by Defendants	Plain and ordinary meaning Alternatively, "an extension to the control field that includes scheduling information"	"an extension appended to the control field that is dedicated to including scheduling information"

ECF No. 47 at 10.

The Parties' Positions

Defendants argue that "[t]he subject claim phrase should be construed as proposed by Defendants due at least to prosecution-history estoppel." Opening at 30. "Further," Defendants argue, "the claim language as amended explains that the scheduling extension is associated with the control field ('the control field includes the scheduling extension') and includes 'scheduling information' ('the scheduling information included in the scheduling extension')." *Id.* at 31.

Plaintiff responds that in prior cases the Court rejected the construction that Defendants propose here, and "[b]ecause Atlas asserts literal infringement of all claims, PHE [(prosecution history estoppel)] does not apply." Response at 38. Moreover, Plaintiff argues, "[t]he phrase 'dedicated to' does not appear anywhere in the prosecution history," and "Atlas' proposed construction already requires that the extension 'includes scheduling information.'" *Id.* Finally, Plaintiff argues that Defendant is improperly attempting to limit the claims to the example embodiment of Figure 13 of the '851 Patent. *Id.* at 38–39.

Defendants reply that "[t]here is an exception to the application of plain-and-ordinary meaning where the patentee disavows the full scope of the claim term during prosecution," and "[h]ere, the prosecution history reinforces that the phrase 'scheduling extension' added through an Amendment was in reference to FIG. 13." Reply at 21 (citations omitted). Defendants submit that they "propose the word 'dedicated' to capture the inventors' lexicography." *Id.*

Plaintiff replies that "Defendants are unclear about whether they are arguing disclaimer or lexicography (or some combination of both); but regardless, these new arguments raised for the first time in the Reply brief are waived," and "[m]oreover, Defendants do not specifically identify which statements constitute the alleged disclaimer or lexicography." Surreply at 17. Further, Plaintiff argues that "[t]his Court has already considered this same argument regarding

this same claim term and found that the patentee's statements in the March 25, 2020 Amendment do not constitute disclaimer." *Id.* (citation omitted). Finally, Plaintiff argues that the phrases "appended to" and "dedicated to" "do not appear *anywhere* in the intrinsic record in connection with this claim term." *Id.* at 18.

The Court's Analysis

The Court addressed this term in *Sercomm/ASUS* and *OnePlus*, and the *TP-Link* court reached the same construction as well. *Sercomm/ASUS* at 68–75; *OnePlus* at 52; *TP-Link* at 59–61.

Claim 1 of the '851 Patent recites (emphasis added):

> 1. A station for facilitating multi-user communication in a wireless network, the station comprising:
>
> one or more memories; and
>
> one or more processors coupled to the one or more memories, the one or more processors configured to cause:
>
> receiving a first frame of a downlink transmission for a plurality of stations;
>
> obtaining a control extension indication from a control field included in the first frame;
>
> determining whether the control extension indication included in the first frame indicates whether the control field includes a *scheduling extension*;
>
> obtaining scheduling information from the control field when the control extension indication indicates that the control field includes the *scheduling extension*;
>
> generating a second frame for a multi-user uplink transmission with the plurality of stations based on the scheduling information included in the *scheduling extension*; and
>
> transmitting the second frame as part of the multi-user uplink transmission with the plurality of stations.

Defendants argue that the scope of "scheduling extension" should be limited to "an extension . . . that is dedicated to including scheduling information" based on prosecution history in which the patentee amended the claims to replace "an extension" with "scheduling extension." Opening, Ex. 7A, Mar. 25, 2020 Response at 2 (ATLAS-00020531) (p. 308 of 328 of Dkt. 41).

Defendants argue that "[t]his amendment effectively excludes 'an extension' (i.e., excludes just any type of extension) from the claimed phrase 'scheduling extension.'" Opening at 30.

Defendants' argument supports finding that a "scheduling extension" must *include* "scheduling information" (which Plaintiff alternatively proposes and which is largely self-evident on the face of the claim), but Defendants do not persuasively support their proposal of "*dedicated to* including scheduling information."

Defendants identify no definitive statements by the patentee that the scheduling extension must be "appended to the control field." *See Omega Eng'g*, 334 F.3d at 1324 ("As a basic principle of claim interpretation, prosecution disclaimer promotes the public notice function of the intrinsic evidence and protects the public's reliance on *definitive* statements made during prosecution.") (emphasis added); *see also id.* at 1325–26 ("for prosecution disclaimer to attach, our precedent requires that the alleged disavowing actions or statements made during prosecution be both *clear and unmistakable*") (emphasis added).

Finally, Defendant's proposal of "appended to the control field" would improperly limit the disputed term to a specific feature of particular embodiments, such as in Figure 13 of the '851 Patent. *See Phillips*, 415 F.3d at 1323. The prosecution history cited by Defendants does not warrant limiting the claims to what is shown in Figure 13 and does not otherwise support Defendants' proposal of "appended." The Court considered this prosecution history in *Sercomm/ASUS* and found no disclaimer. *See Sercomm-ASUS* at 74 ("Rather than being a disclaimer, the description in this passage merely describes examples, which is made clear by the passage's use of language such as '[b]y way of illustration, but not limiting the scope of the claims' and 'e.g.' Based on that, the Court concludes that Applicant did not make a prosecution disclaimer."). Indeed, the patentee cited Figure 13 expressly "[b]y way of illustration, but not

limiting the scope of the claims." Opening, Ex. 7A, Mar. 25, 2020 Response at 7 (ATLAS-00020536) (p. 313 of 328 of Dkt. 41). Thus, here as in *Sercomm/ASUS* (s*ee Sercomm/ASUS* at 74–75), the Court rejects the proposal of "appended."

The Court accordingly hereby construes **"scheduling extension"** to mean **"an extension to the control field that includes scheduling information."**

XII. CONCLUSION

In conclusion, for the reasons described herein, the Court adopts the constructions in Appendix A, below, as its final constructions.

SIGNED this 9th day of May, 2023.

DEREK T. GILLILAND
UNITED STATES MAGISTRATE JUDGE

APPENDIX A

Term	Plaintiff's Proposal	Defendants' Proposal	Court's Final Construction
#1: "[a/the] network device" U.S. Patent No. 9,531,520, Cls. 1, 6 Proposed by Defendants	Plain and ordinary meaning	"[an/the] access point"	Plain meaning
#2: "acknowledgement information" U.S. Patent No. 9,531,520, Cls. 1, 2, 4, 8, 9, 11, 12, 18, & 19 Proposed by Defendants	Plain and ordinary meaning	"solicitation for information to be transmitted following receipt of the downlink multi-user frame to acknowledge the downlink multi-user frame"	Plain meaning
#3(a): "transmitting to the transmitting device a feedback frame including subchannel information measured on a first subchannel after receiving the NDP frame" U.S. Patent No. 9,763,259, Cl. 1 Proposed by Defendants	Plain and ordinary meaning	"in response to receiving the NDP frame, transmitting to the transmitting device a feedback frame including subchannel information measured on a first subchannel one SIFS after receiving the NDP frame" Otherwise, this term is indefinite.	Plain meaning
#3(b) "receiving from each receiving device a feedback frame including subchannel information measured on a subchannel that is allocated to each receiving device among a plurality of subchannels into which a band is divided, after transmitting the NDP frame" U.S. Patent No. 9,763,259, Cl. 18 Proposed by Defendants	Plain and ordinary meaning	"in response to and one SIFS after the transmitting of the NDP frame, receiving from each receiving device a feedback frame including subchannel information measured on a subchannel that is allocated to each receiving device among a plurality of subchannels into which a band is divided" Otherwise, this term is indefinite.	Plain meaning

#4: "wherein the NDPA frame indicates information corresponding to the predetermined length" U.S. Patent No. 9,763,259, Cl. 6 Proposed by Defendants	Plain and ordinary meaning	Indefinite	Plain meaning
#5(a): "transmitting the downlink data and the uplink setup information in a single physical downlink frame to a plurality of stations" U.S. Patent No. 9,825,738, Cl. 1 Proposed by Defendants	Plain and ordinary meaning	"transmitting the downlink data and the uplink setup information in a single physical downlink frame to a plurality of stations, wherein the uplink setup information is that which would otherwise be in an uplink setup or uplink initiation (ULI) frame, and the downlink data is data other than the uplink setup information"	Plain meaning
#5(b): "the physical downlink frame comprising: uplink setup information including a first information to be used for uplink multi-user transmission by the station, and downlink data" U.S. Patent No. 9,825,738, Cl. 9 Proposed by Defendants	Plain and ordinary meaning	"the physical downlink frame comprising: uplink setup information including a first information to be used for uplink multi-user transmission by the station, and downlink data, wherein the uplink setup information is that which would otherwise be in an uplink setup or uplink initiation (ULI) frame, and the downlink data is data other than the uplink setup"	Plain meaning
#6(a): "the second information is a function of a total number of space time streams to be used to transmit the multiple uplink frames" U.S. Patent No. 9,825,738, Cl. 1 Proposed by Defendants	Plain and ordinary meaning Alternatively, "the second information in the common information portion is a value that is related to the total number of space time streams to be used to transmit the multiple uplink frames"	Indefinite	Plain meaning

#6(b): "the second information is a function of a total number of space time streams to be used to perform the simultaneous transmission of the uplink frame and the one or more uplink frames from the one or more other stations" U.S. Patent No. 9,825,738, Cl. 9 Proposed by Defendants	Plain and ordinary meaning Alternatively, "the second information in the common information portion is a value that depends on the total number of space time streams to be used to simultaneously transmit the multiple uplink frames"	Indefinite	Plain meaning
#7(a): "a mode that is High Efficiency" U.S. Patent No. 9,848,442, Cls. 1, 8 Proposed by Defendants	"a mode specified as High Efficiency (HE) by an 802.11 Standard or proposed 802.11 Standard"	Indefinite	"a mode specified as High Efficiency (HE) by an 802.11 standard (or proposed standard) at the time of the invention"
#7(b): "a mode of a standard previous to a standard defining the High Efficiency mode" U.S. Patent No. 9,848,442, Cls. 1, 8 Proposed by Defendants	"a legacy mode specified in a IEEE 802.11 Standard released prior to 802.11ax standard or proposed standard (e.g., a non-HT frame, a HT frame, a VHT frame)"	Indefinite	"a legacy mode specified in an IEEE 802.11 standard (or proposed standard) prior to the 802.11ax standard"

#8: "when the BSS of the first PPDU is the BSS to which the first station does not belong, a received signal strength of the first PPDU is higher than a first threshold, and the first PPDU is a frame having a mode that is High Efficiency and having a PHY header that includes duration information for setting a virtual carrier sensing . . .; when . . . the received signal strength of the first PPDU is higher than the first threshold, the first PPDU is a frame having a mode of a standard previous to a standard defining the High Efficiency mode, and the first PPDU is a frame having a PHY header that does not include duration information for setting the virtual carrier sensing . . .; and when . . . the received signal strength of the first PPDU is lower than the first threshold" U.S. Patent No. 9,848,442, Cls. 1, 8 Proposed by Defendants	Plain and ordinary meaning	Indefinite If not indefinite, the Court must determine whether only one of the claimed steps with mutually exclusive conditions, or all three of the claimed steps with mutually exclusive conditions, are required to occur for purposes of meeting the claim limitations.	Plain meaning
#9(a): "wherein at least a portion of the payload of the uplink frame is associated with the first guard interval length" U.S. Patent No. 9,912,513, Cl. 1 Proposed by Defendants	Plain and ordinary meaning	Indefinite	Plain meaning
#9(b): "wherein at least a portion of the payload of the uplink frame is associated with the first CP length" U.S. Patent No. 9,912,513, Cl. 9 Proposed by Defendants	Plain and ordinary meaning	Indefinite	Plain meaning

#9(c): "wherein at least a portion of the legacy header is associated with a second CP length" U.S. Patent No. 9,912,513, Cl. 10 Proposed by Defendants	Plain and ordinary meaning	Indefinite	Plain meaning
#9(d): "wherein at least a portion of the respective non-legacy header is associated with the first guard interval" U.S. Patent No. 9,912,513, Cl. 16 Proposed by Defendants	Plain and ordinary meaning	Indefinite	Plain meaning
#10(a): "determining exactly a number of the one or more station information fields in the NDPA . . . in response to determining that the number of the one or more station information fields in the NDPA is one, transmitting first Channel State Information (CSI) feedback in response to receiving the NDP" U.S. Patent No. 10,020,919, Cl. 1 Proposed by Defendants	Plain and ordinary meaning	Indefinite. If not indefinite, the claim[] should be construed as set forth below[:] "determining an exact value of a number of one or more station information fields in the NDPA; . . .[] in response to (i) determining that the value of the number is one, which indicates that there is only one station information field in the NDPA and (ii) receiving the NDP, transmitting first Channel State Information (CSI) feedback to an access point"	Plain meaning

#10(b): "when the number of the one or more station information fields in the NDPA is greater than one . . . transmitting the first CSI feedback in response to receiving the first trigger frame" U.S. Patent No. 10,020,919, Cl. 2 Proposed by Defendants	Plain and ordinary meaning	Indefinite. If not indefinite, the claim[] should be construed as set forth below[:] "when the value of the number is two or more, which indicates that there are two or more station information fields in the NDPA, . . . transmitting the first CSI feedback to the access point in response to receiving the first trigger frame"	Plain meaning
#10(c): "when the number of one or more station information fields in the NDPA is greater than one . . . transmitting second CSI feedback in response to receiving the second trigger frame" U.S. Patent No. 10,020,919, Cl. 8 Proposed by Defendants	Plain and ordinary meaning	Indefinite. If not indefinite, the claim[] should be construed as set forth below[:] "when the value of the number is two or more, which indicates that there are two or more station information fields in the NDPA, . . . transmitting second CSI feedback to the access point in response to receiving the second trigger frame"	Plain meaning
#10(d): "when a number of the one or more station information fields in the NDPA is one, receiving first Channel State Information (CSI) feedback transmitted in response to the NDP having only one station information field" U.S. Patent No. 10,020,919, Cl. 11 Proposed by Defendants	Plain and ordinary meaning	Indefinite. If not indefinite, the claim[] should be construed as set forth below[:] "when a station determines that the value of a number of the one or more station information fields is one, which indicates that there is only one station information field in the NDPA, receiving first Channel State Information (CSI) feedback transmitted in response to the NDP having only one station information field"	Plain meaning

#10(e): "when the number of the one or more station information fields in the NDPA is greater than one . . . receiving the first CSI feedback in response to transmitting the first trigger frame" U.S. Patent No. 10,020,919, Cl. 12 Proposed by Defendants	Plain and ordinary meaning	Indefinite. If not indefinite, the claim[] should be construed as set forth below[:] "when the station determines that the value of the number is two or more, which indicates that there are two or more station information fields in the NDPA, . . . receiving the first CSI feedback in response to transmitting the first trigger frame"	Plain meaning
#10(f): "when the number of one or more station information fields in the NDPA is greater than one . . . receiving second CSI feedback in response to transmitting the second trigger frame" U.S. Patent No. 10,020,919, Cl. 19 Proposed by Defendants	Plain and ordinary meaning	Indefinite. If not indefinite, the claim[] should be construed as set forth below[:] "when the station determines that the value of the number is two or more, which indicates that there are two or more station information fields in the NDPA, . . . receiving second CSI feedback in response to transmitting the second trigger frame"	Plain meaning
#11: "wherein the number of the one or more station information fields in the NDPA is the cardinality of the one or more station information fields in the NDPA" U.S. Patent No. 10,020,919, Cls. 1, 11 Proposed by Defendants	Plain and ordinary meaning Alternatively, "wherein the number of the one or more station information fields in the NDPA is the number of elements in the set of station information fields"	Plain meaning: wherein the number of the one or more station information fields in the NDPA is the number of the one or more station information fields in the NDPA This plain meaning renders the claims indefinite.	Plain meaning

#12: "scheduling extension" U.S. Patent No. 10,756,851, Cls. 1, 2, 7, 8 Proposed by Defendants	Plain and ordinary meaning Alternatively, "an extension to the control field that includes scheduling information"	"an extension appended to the control field that is dedicated to including scheduling information"	"an extension to the control field that includes scheduling information"